
October 2002 Monthly Progress Report

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Responsible Official: Dr. Joseph H. King, Code 633

Last Revised: Friday, 15-Nov-2002 15:01:19 EST [NAB]

Task Assignment 99-001-00 October 2002

MANAGEMENT

GSFC ATR - Dr. J. Green

Raytheon ITSS Task Leader - L. Mayo

Raytheon ITSS Group Manager - L. Mayo

TASK OBJECTIVE: The non-personal services required under this task include performing all necessary functions to manage Raytheon ITSS contract staff supporting the Space Science Data Operations Office (SSDOO). The Raytheon ITSS management team will meet with the SSDOO management team to discuss significant events and contract highlights to be presented to upper management and Headquarters, and current contract issues and concerns.

SIGNIFICANT EVENTS:

- Staff held weekly senior staff meetings.
 - Staff presented SSDOO status at program review.
 - Staff worked to ensure a smooth transition of staff for both ADC and with regard to Raytheon subcontracting.
 - Staff continued planning for Science Data Centers Symposium.
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Last Revised: Friday, 15-Nov-2002 15:31:44 EST [NAJ]

Task Assignment 99-101-00 October 2002

AMASE-MOCHA-CONCAT DEVELOPMENT GSFC ATR - Dr. C. Cheung Raytheon ITSS Task Leader - E. Shaya Raytheon ITSS Group Manager -

TASK OBJECTIVE: This task provides support for the development of the object-oriented data base multispectral astrophysics data catalog, AMASE (Astrophysics Multimission Archive Search Engine) as an interface to NASA's astrophysics data holdings. This effort is a collaborative one with the University of Maryland (UMD) Computer Science Department, and frequent interactions with UMD counterparts are expected. The general goal for this performance period is to develop the AM ASE prototype into an astronomical search and discovery engine by expanding the data contents and augmenting the search capabilities. Work includes incorporating astrophysics data from other wavelength bands to complete the electromagnetic spectrum and developing procedures to access remote relational data bases.

SIGNIFICANT EVENTS:

A. DSA:

- Staff worked on XML telemetry language for OMG RFP.
- Staff is writing white paper summary of year's work.

UPCOMING MILESTONES/EVENTS: November OMG meeting in Crystal City. Telemetry and command language will be submitted as an official draft.

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Last Revised: *Friday, 15-Nov-2002 14:42:59 EST [NAJ]*

Task Assignment 99-110-00 October 2002

AUTONOMOUS TECHNOLOGY GSFC ATR - Dr. M. E. Van Steenberg Raytheon ITSS Task Leader - R. Dunlap Raytheon ITSS Group Manager -

TASK OBJECTIVE: The objective of this task is to support the development of a simulation environment that supports autonomous distributed spacecraft control and test science collection techniques using artificial intelligence (AI) technologies. This work is in collaboration with the GSFC's Guidance, Navigation and Control Center and JPL's Automation and Control group. The contractor shall support the following activities and contribute to reports and white papers as appropriate: (a) evaluate Science Quick-Look Analysis Tools (e.g., HEASARC) for use as on-board analysis tools, (b) define Typical Science-Driven Maneuver Automation Requirements, (c) define Typical Science Automation Requirements, (d) define Basic System Architecture, and (e) develop rapidly a prototype to demonstrate key capabilities.

SIGNIFICANT EVENTS: No work was performed on this task during the reporting period.

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Last Revised: Friday, 15-Nov-2002 14:43:35 EST [NAJ]

Task Assignment 99-113-00 October 2002

GLAST
GSFC ATR - R. Fink
Raytheon ITSS Task Leader - J. Palencia
Raytheon ITSS Group Manager -

TASK OBJECTIVE: GLAST is a multipartner gamma-ray survey mission with a GO observation component. The ADF will provide a prototype public archive design using Beowulf and other related technology. The prototype will implement the archive design using the Compton Gamma Ray Observatory EGRET data set. The contractor shall provide personnel to support the following tasks: (1) systems administration support of the Beowulf cluster and (2) programming support as requested for implementing the archive prototype.

SIGNIFICANT EVENTS:

- Staff implemented SCYLD on the HPC's Beowulf Cluster, Okra0.
- Staff implemented PBS, MPICH_GM_INTEL on the 148-processor BLISS Code 600 cluster.
- Staff provided system administration support for HPC's Beowulf Clusters (MEDUSA & ORKA).
- Staff provided system administration support for MEDUSA workstations.
- Staff provided system administration support for the BLISS Beowulf cluster.
- Staff provided system administration support for the Glast Beowulf cluster.
- Staff provided system administration support for the SIMDOG Beowulf cluster.

UPCOMING MILESTONES/EVENTS:

- Staff will assist in the system administration/setup of HPC's Beowulf Cluster, THUNDERHEAD.
- Staff will implement CUBS, PVFS, MPICH_GM_NAG/PGI on the 148-processor BLISS Code 600 cluster.
- Staff will continue work on thesis.

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Last Revised: *Friday, 15-Nov-2002 14:51:00 EST [NAJ]*

Task Assignment 99-115-00 October 2002

SWIFT

GSFC ATR - Dr. R. Fink

Raytheon ITSS Task Leader - Dr. E. Pier

Raytheon ITSS Group Manager -

TASK OBJECTIVE: Swift is a multipartner gamma-ray burst detection and follow-up observation mission. The Astrophysics Data Facility (ADF) will provide science data processing pipeline design, development, and operations. In addition, the ADF will be responsible for providing Quicklook processing to the Swift Mission Operations Center (MOC) at Pennsylvania State University (PSU). The final outputs of the pipeline processing will be delivered to the HEASARC at GSFC and to project partners in England and Italy.

SIGNIFICANT EVENTS:

- Staff worked with XRT team to correct problems with their Panter telemetry. provided software and advice.
- Staff worked on finalizing design details for the MOC data transfer system.
- Staff participated in data and metadata transfer tests with HEASARC and ISAC.
- Staff made major strides in developing the processing script as a new version of xrt2fits allowed the XRT FTOOLS to run without crashing. Now have basic code to filter and extract images spectra and lightcurves.
- Staff developed the "squirt" scripting mini-language for manipulating Swift telemetry.

UPCOMING MILESTONES/EVENTS:

- Staff will continue working with MOC to finalize the data transfer mechanism. Staff will do extensive testing when the MOC is ready.
 - Staff will continue working with XRT team to "fix" the Panter telemetry headers.
 - Staff will participate in data transfer tests with UKDC when they are ready.
 - Staff will continue testing the processing pipeline with new versions of the FITS converters and as new input data become available from the instrument teams.
 - Staff will continue development of the processing script as working software tools become available.
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Last Revised: Friday, 15-Nov-2002 15:35:12 EST [NAJ]

Task Assignment 99-201-00 October 2002

IMAGE

GSFC ATR - R. Burley

Raytheon ITSS Task Leader - C. Klinsch

Raytheon ITSS Group Manager -

TASK OBJECTIVE: The objectives of the IMAGE Mission Data System task are to develop, test, and maintain the IMAGE Web data access and display system, the IMAGE data processing system, and the IMAGE data distribution system.

SIGNIFICANT EVENTS: Staff will continue to maintain IMAGE Data Delivery website according to customer requests.

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Last Revised: *Monday, 18-Nov-2002 15:09:57 EST [NAJ]*

Task Assignment 99-202-00 October 2002

MAGNETOSPHERIC MODELING AND ANALYSIS

GSFC ATR - Dr. S. Fung

Raytheon ITSS Task Leader - Dr. L. Tan

Raytheon ITSS Group Manager

TASK OBJECTIVE: This task calls for (1) the performance of analysis supporting the development of a new generation of trapped radiation, (2) the documentation and analysis support in an ongoing SSDOO research program on the outer magnetosphere, and (3) ISTP campaign coordination.

SIGNIFICANT EVENTS:

1. Task staff produced a HTML front-end script to execute the Perl script designed for querying magnetospheric state index database. Also, a staff member met with system personnel to discuss migration of the magnetospheric state index database table to the operation database (NIMS).
 2. From CDAWeb task staff collected the trapped particle data measured by the NOAA satellites. The data were selected for specified magnetospheric state index ranges. Staff further completed the data plots that were then used in the poster paper entitled "Development of a magnetospheric state-based trapped radiation data base" (Authors: S. F. Fung et al.) The paper was presented in the 34th COSPAR Scientific Assembly, which was held in Houston, Texas, on 10-19 October 2002.
 3. Task staff continued to revise the paper entitled "Can cusp-originated relativistic electrons be identified in the radiation belt" submitted to Geophysics Research Letters. While the paper was rejected again by the journal, the editor has strongly supported the re-submission of a revised manuscript.
 4. Task staff began to prepare a program in order to calculate the omnidirectional flux of trapped particles from the observations by the NOAA satellites.
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Last Revised: Friday, 15-Nov-2002 14:30:25 EST [NAJ]

Task Assignment 99-203-00 October 2002

SPACE SCIENCE VISUALIZATION FACILITY GSFC ATR - Dr. R. Kessel Raytheon ITSS Task Leader - J. Friedlander Raytheon ITSS Group Manager -

TASK OBJECTIVE: The task of the Space Science Visualization Facility within the SSDOO is to support the SSDOO education and outreach activities, scientific analyses, and IMAGE mission activities. Members of the facility will need to work closely with the space science community in order to create appropriate space science videos, illustrations, and displays and to develop overall approaches and procedures for the maintenance of the task.

SIGNIFICANT EVENTS:

1. Staff completed bow shock, magneto pause, and magnetic field lines simulation for Dr. Mona Kessel. Four days of render time required for completion.
2. Staff worked on Plasma ring simulation to better understand EUV data from the image mission.
3. Staff visited Savannah College of Art and Design to inquire about internship possibilities.
4. Staff created three poster for Lou Mayo for EPO presentation: Remote Observational Techniques in Education; Venus Transit 2004; and Systemic Reform of Astronomy Curriculum in the Montgomery County Public Schools for Raytheon Information Technology and Scientific Services (RITSS) personnel to be put on display at the 34th Annual Meeting of the American Astronomical Society (AAS) Division of Planetary Sciences (DPS), October 6-11, 2002, in Birmingham, Alabama.
5. Staff illustrated three lithographs - front and back - for the Sun-Earth Connection Education Forum (SECEF): Earth's Celestial Halo - Aurora Borealis and Australis; Blackout!; and Venus Transit. Sent files to RITSS HQ for printing.
6. Staff processed and converted over 300 files for the Dynamic Response Simulation of the Bow Shock, Magneto pause, and Field lines for the April 23rd Solar Event animation/presentation to be shown to the Space Science Division at HQ.
7. Staff illustrated four Science nuggets for the Space Science Directorate (SSD) to be included in the monthly report to NASA HQ.
8. Staff completed putting entire Sun-Earth Day 2003 web site on-line. Staff had several meetings with SECEF and LWS personnel to refine web site. A cd version of the web site was created for possible distribution.
9. Staff made some minor changes to Division of Planetary Sciences (DPS) site.
10. Staff took photographs of BLISS/Beowolf cluster for presentation.
11. Staff assisted in moving the Visualization lab from the top floor to the first floor.
12. Staff continued work on creating video presentations of Sunspotter and Radio Jove set-up and use.

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Task Assignment 99-204-00 October 2002

SPACE PHYSICS SOFTWARE DEVELOPMENT, SYSTEM MAINTENANCE, AND SPECIAL PROJECTS

GSFC ATR - Dr. R. McGuire

Raytheon ITSS Task Leader - T. Kovalick

Raytheon ITSS Group Manager -

TASK OBJECTIVE: The objectives of the space physics development task are to design, develop, document, support, and promote the re-engineering of the SSC Software Systems and the CDAW Graphics Systems. These software systems will support Satellite Situation Center (SSC) Operations, ISTP SPOF, SPDS, STEP, other NASA projects, and the space physics community in general. Accomplishing this objective requires maintenance of the software in both a UNIX and VMS environment, use of appropriate software development tools and methods, development of concise documentation, definition of new magnetospheric field and region models, and communication with scientists and end users both at the NSSDC and in the larger space physics community to ensure that their needs and requirements are being met. This task will work closely with the CDF/graphics task to fulfill its responsibilities. CRUSO in particular will play an important user support role for both SSC and the CDAW Graphics System. It will serve as the first point of contact for users, distribute documentation, answer simple questions, and forward software and science questions to this task and to SSC Operations.

SIGNIFICANT EVENTS:

1. Work on CDAWeb Software: Staff continued investigating the geographic registration problem long suspected by staff and recently reported by a user of the Polar UVI/VIS image data. Staff reviewed all of the mapped image displays of the IMAGE instrument data and made corrections to the associated code where appropriate; some additional problems were found and were corrected; all non-RPI IMAGE datasets were added to the public catalogs and all warnings were removed from the catalog descriptions. Staff completed the layout and generation of multiple inventory plots for each CDAWeb view so that the plots are more readable/useful. Staff completed the ingest software modifications and the re-ingest of all ISIS files into daily sub-directories for the ftp site and the mirror sites. In order to permanently shut down NDADS/ISTP pipeline software, two new directories were established for the operations group to use, one to support ISIS operations and the other for the remaining Smapex and Wind waves processes. In addition, staff began work on implementing error bars for time series plots.
2. CDAWeb Design work: Staff developed a design for how to merge/combine the structures for datasets so that the variables from more than one dataset can be used when setting up virtual variables.
3. Work on SSCWeb Software: Staff rewrote the calculator servlet as a CGI program; the science staff has been asked to test the new interface and so far performance and reliability are much better. Staff are also pursuing isolating and fixing several Locator and Query user interface issues discovered during the porting effort. Staff worked with B. Harris to test the TIPSOD application on more platforms.
4. CDAWeb Statistics: The statistics include GSFC, RAL, ISAS and EDC: CDAWeb fulfilled 7,686 plotting requests, 2,637 ASCII listing requests and 278 CDF delivery requests, where each request can contain more than one plot/listing/file; (RAL: 48, 46, 2) and (ISAS: 183, 70, 7); there were 60,937 total accesses (12.37Gb) to the rumba CDAWeb HTTP Server. The anonymous ftp site delivered 5.76 Gb of data; 32,874 CDF files and 250 software/document files to non-staff users. The "overall" ftp statistics file was updated and can be found at http://cdaweb/cdaweb/logs/FTPaccumulative_record.html. The monthly web server and ftp statistics files can be found at <http://cdaweb/cdaweb/logs>.
5. SSC Statistics: Usage statistics from ubatuba, are as follows: There were 46 accesses of the SSC Version 3.0 Main Menu; Locator was executed 5 times; Query was not executed; the Data Base listing was not accessed; the Calculator was not accessed; the File Output option of the system was executed 45 times and the FTP option was executed 36 times.

6. Usage statistics for the Web-based versions of SSC Query and SSC Locator programs are as follows: The query_server was executed a total of 188 times; the tabular_server was executed a total of 1,163 times; the graphical_server was executed 1,163 times for a total of 2,514 accesses, excluding developers. In addition, the SPOF accessed the systems 26 times; SSC Operations staff accessed the systems five times. The SSC Web pages (main page as well as any GIF, user's guide, etc.) were accessed 10,941 times, with 64 accesses by SPOF staff and 23 accesses by SSC Operations staff. The new TIPSOD application was accessed 2,329 times.
7. Mirror Sites: RAL, ISAS and EDC are retrieving their provided data and software updates on a regular basis through their FTP accounts. Usage statistics were received from RAL and ISAS this month; these numbers were incorporated into the CDAWeb statistics listed above.
8. Ingest/operational activities: The CDAWeb metadata generator and inventory plot generation software are being executed nightly. As part of this process, any new MAP, IMAGE, LANL, GOES, ACE, FAST, Polar, ISIS, Cluster and PWG (the new Polar/Wind/Geotail replacement for the CDHF) files are being "ingested" as well. A user reported unusual values in many of the Ulysses KET data files, after investigating it was determined that all files produced by ESTEC after March 10, 1999, for all instruments on Ulysses (except H0_GLG), don't appear to contain good values; thus the affected files were removed from CDAWeb and we are working with the data provider to acquire corrected files. The process of copying and compressing all of the ISIS2 CDFs from nssdcftp to rumba continues; it is expected to take approximately one more month. In addition, the master cdf "notes" web pages were updated each week.
9. PWG software re-engineering effort: Staff occasionally check the Wind NRT data plots to make sure the data stream is still successfully flowing from the new PWG data machine.

PROBLEM AREAS:

UPCOMING MILESTONES/EVENTS:

1. A new RAID disk tower for the rumba machine is expected soon; plans are being made for its optimal configuration.
2. Staff will assist the ATR with providing documentation and the appropriate level of information to help define meaningful assignments for a new co-op. student.
3. Staff will continue to work with the IMAGE project personnel to validate the CDAWeb displays of the IMAGE data.
4. Staff will continue testing and maintenance on CDAWeb and testing/enhancing all of the plotting and listing software.
5. Staff will continue testing, modifying, and documenting the CDAWlib software and associated Web pages.
6. Staff will continue testing and maintenance of the SSCWeb system.

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Last Revised: *Friday, 15-Nov-2002 14:31:14 EST [NAJ]*

Task Assignment 99-205-00 October 2002

SPACE PHYSICS DATA ACQUISITION AND VALUE-ADDED SERVICES

GSFC ATR - Dr. R. McGuire

Raytheon ITSS Task Leader - Dr. H. Hills

Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of this task are four-fold: 1. to support space physics and information acquisition for NSSDC, including support for ingest to the near-line/on-line archive and/or for distribution as CD-ROMs; 2. to support value-added space physics services, including operation of the SSC, creation of new composite space physics data/model products, definition of science user requirements for SSDOO systems and other NSSDC data and information systems, and science-expert support for other efforts such as IACG and SPDS as appropriate; 3. to carry out selected archival research and mission planning activities, including publication of results; and 4. to provide logistics support as directed for working meetings related to SPDS, including travel reimbursement.

SIGNIFICANT EVENTS:

1. DIONAS INGEST:

- a. ISIS: Routine ingest continued at the usual rate. Remarkable are the high access numbers to the TOPIST electron density profiles in July 2002 and August 2002. This is a result of the announcement of these data at various meetings in Europe in August 2002.
- b. Isis pipeline software code was modified to move the CDFs to a specific CDAWeb ingest directory on rumba, which will greatly simplify the process.
- c. SAMPEX: Routine ingest of all seven datasets in nssdcftp or cdaweb from SAMPEX continued uninterrupted. After some hiatus in getting write-privilege into nssdcftp/spacecraft_data/spectra_3min_gif and *_ps, the 0readme.txt files were inserted. The staff was instructed to extend the data coverage into 2002 (from the current 2000) for both the gif and ps files by downloading them from the PI's ftp site.
- d. Scripts were written for C. Lindsay so she could do her processing of SAMPEX and Wind data on rumba. Final destination of the CDFs is an ingest directory (set up by Tami) so that the CDFs will automatically be ingested to CDAWeb.
- e. Modified the wi_h1_swe CDF generation software and skeleton cdf to add in the new alpha variables and the moments parameters have been added back in.

2. OTHER DATA INGEST:

- a. The Ulysses Science Working Team decided at their recent meeting (No. 48) to remove proprietary waiting periods, nominally one year to date, for release of archival data for public access.
- b. Ulysses solar wind ion and electron data sets from the SWOOPS experiment were updated for September 2001 to September 2002. One-minute magnetometer data were extended for January to June 2001. Updates for COSPIN, HISCALE, GAS, and GRB experiment data sets are in progress.
- c. Six month OMNI CDFs were updated; software needed to be updated to accommodate variable name changes.
- d. Receiving data thru istp-events for Scott Boardsen and placing the data into directories on rumba for him to retrieve.

- e. The FAST team was contacted regarding 2002 data and has now filled up data records to September 22, 2002.

3. Data Set Contacts: There has been no further (promised) input from Doug Hamilton about decontaminating the AMPTE/CCE-CHEM particles data for the radiation belt impact. It is very clear, as he had said and as the acqsci had known, that it is not going to be a clean/easy/viable job to decontaminate. He will not be reminded any further.

After K. Hills spoke with Don Gurnett, there was some activity with respect to the Iowa digital VLF data (from assorted s/c). R. Brechwald has loaded a sample file of IRM data with descriptions and format in a website. The data is in binary (probably VAX binary) and an ASCII-making fortran is also provided. Upon browsing them, this acqsci raised some comments/queries. The most recent message from Brechwald is that he has to understand the data some more before addressing my queries. (Also, upon calls, it was learnt from his colleague that he is semi-retired and is on the way to full retirement, probably.)

No word from Reiner Freidel about the polar_cammice data.

4. Support for Presentation to HQ personnel

- a. Task scientists prepared mission archiving status reports and viewgraphs for use by R. McGuire in a presentation to NASA Headquarters representatives from the Office of Space Science.
- b. Data availability summaries were prepared for the FAST and TIMED missions in preparation for the visit by C. Holmes and J. Bredekamp (HQ/OSS). D. Bilitza attended the meeting with the HA visitors and answered questions regarding the FAST and TIMED data archiving status.

5. ISIS2 Support

- a. Continued the process of copying all ISIS2 cdfs from nssdcftp to cdaweb. Each day 4000 CDFs are moved. As of 10/31 we have moved approximately 220,000 CDFs over, and have completed 55 out of a total 68 runs that it will take to complete this process. Additional scripts were written for better error checking and to speed the process. This task should be completed in November 2002.
- b. Work started on modifying Bob Benson ISIS2 search web page for ISIS 1, awaiting additional software and data base from Bill Schar.

6. Maintenance of NSSDC Information Databases:

- a. No AGU journals were started on circulation this month because of the continuing problems AGU is having in bringing out printed versions in time. However, GRL issues still circulating were reviewed by two scientists, resulting in twelve papers being keyworded for TRF.
- b. A link to the GSFC TIMED project page was updated in the NMC supplemental file at the request of the agent.
- c. Text changes were submitted for several AIM BDs and for the ATMOWeb interface page.
- d. A new supplemental file was created for two of the Kompsat experiments.
- e. The links to the NMC database on the NSSDC Solar pages were reported to be erroneous by the task ATR. The links were altered to point to the current NMC query program.
- f. The AIM BDs for the ROCSAT and KOMPSAT satellite and their experiment BDs were updated with more recent information.
- g. Various other new entries and updates were added to the information system.

8. SSC Ephemeris

- a. Ephemeris information was created and updated into the SSC's UNIX data base for 32 spacecraft. Files for

five spacecraft were updated for the [ACTIVE.IACG.ELEMENTS] directory.

- b. The SSC ephemeris application codes Locator and Query remain bug-free after a move from Wharfrat to Ubatuba.
- c. The SSCWeb software named "Calculator" is a manual-input coordinate conversion program: coordinates are input in one system and output in all six other coordinate systems. Calculator code remained inaccessible or erratic for some years. C. Klipsch of the dev_group has now fixed up the software, and has been given suggestions for further improvements.

9. The draft and final versions of SPX 587 were made available via WWW and FTP. SPX 588 was drafted and loaded online. It carries stories on four launches. As usual, a copy of that was emailed to COSPAR. Four WDC SI announcements regarding the launch and assignment of IDs to four missions were sent by e-mail and posted to the Usenet News. No CCSDS IDs were assigned for future mission/simulation telecommunications.

10. An acqsci met with J. King with respect to his interest in enabling interconnected examination of solar wind data from IMP 8, Wind, and ACE. He will be provided with hourly values of an "impact parameter" between any pair of s/c; which is approximately the normal distance from sc-1 to the line joining sc-2 to Sun, after folding in a typical solar wind speed of 390 km/s and the Earth's orbital speed of 30 km/s. Work will commence on it in the first week of November. (It was nice to know that IMP 8 has come back from the dead after a 3-month shut down; HQ has agreed with the space community to keep IMP 8 data acquisition indefinitely into the future.)

11. MAINTENANCE AND UPDATING ON THE VARIOUS WWW PAGES:

a. Algorithms and Models on WEB:

Accesses for this month:

CGM	996
IRI model	4055
MSIS model	1075
IGRF model	917
TRAP particle model	330
T89 model	36
T96 model	2789
Heliospheric Ephemerides	794
IMP-8 daily position ...	8

b. COHOWEB and OMNIWEB systems (data and software)

1. OMNIWeb was updated, adding:
 - a. IMP8 plasma data for days 107-207 of 2001
 - b. new Dst definitive indices for 2000
 - c. new Provisional indices for Feb-July 2002
 - d. KP for August 2002.

Accesses for OMNIWEB: plots/list/scatter: 529 / 377 / 89 = 995
 Accesses for COHOWEB: plots/list: 209 / 67 = 276

c. ATMOWEB system and FTPHelper (graphical browsing & retrieve FTP data)

1. Added ISEE3 1-min mag data with HGI coordinates

FTP Browsing accesses for this month (plotting/listing): 59 / 44 = 103
 ATMOWEB accesses for this month (plotting/listing): 70 / 43 = 113

d. FTP site (System software, data ingest, creation of CD-Rs)

<http://nssdc.gsfc.nasa.gov/internal/monthly/oct02/205-00.html>

1. OMNI ASCII files were updated, adding:
 - a. IMP8 plasma data for days 107-207 of 2001
 - b. new Dst definitive indices for 2000
 - c. new Provisional indices for Feb-july 2002
 - d. KP for August 2002.

- e. Cosmic and Heliospheric pages and services
- f. Geomagnetic and Magnetospheric Models through network
- g. Space Physics home page
1. Updated: ace.html, ae.html, ftphelper.html, ow.html, etc.

12. Special Tasks for Joe King

- a. Built new shifted hourly WIND plasma data using a new equation for shifting to Near-Earth environment from new 92-second resolution data
- b. Built new shifted hourly ACE plasma data using a new equation for shifting from 4-minute resolution data (adding Flow elevation and Azimuth angles)
- c. Built new hourly IMP/MIT plasma data (adding Flow elevation angle)
- d. Built new hourly merged WIND, IMP, and ACE plasma data, including these data into FTP Browser interface-option for scatter plot, and scatter plot of any two parameters with calculation of slope and intercepts with real deviation
- e. Built new shifted hourly ISEE3 plasma data using a new equation for shifting to Near-Earth environment
- f. Using bowshock data base, built a special data file which includes a pointer for every hour (1994-1996) where IMP-8 is in solar wind, magnetosheath, etc.

12. Support for Offline_tapes-to-DIONAS:

Made a demo of the OTTO-related scripts to B. Rowland and R. Post. As a result, added some new capabilities to the scripts to update and display the information in OTTO.TABLE. Then sent the latest scripts and otto.table to Pat McCaslin, together with some additional text, thus turning this coding effort over to McCaslin. Acqsci effort on this task will now be reduced, limited to the acquisition_scientist-related items.

13. ISEE Solar Wind Electron CDFs from Fitzenreiter:

Several plots and listings of the data were made from the test CDAWeb area, for Fitzenreiter's ISEE 1 solar wind electron data. Several corrections were made to the units and ranges specified by the data provider. In addition, it was found that the time resolution of the data (three spin periods) was not as expected, thus making the special treatment of the six elements of higher time resolution obviously incorrect (although computed as directed). This treatment can easily be corrected, and will be fixed in November.

Fitzenreiter was notified of the availability of the test data, but he could not get to it for a week or two. As of the end of the month, we still await his comments, but are going ahead with fixing the six elements noted above.

14. Miscellaneous

Considerable time was spend during this past month with software issues regarding the upgrade of a Mac from OS 9 to OS 10.

15. Meetings, Presentations, and Publications

- <http://nssdc.gsfc.nasa.gov/internal/monthly/oct02/205-00.html>

Mar 20,492 12.0 549.7 5917 I 179 18 48 99 83 78 27 17 14263
 Apr 17,460 9.2 558.9 6057 I 50 215 15 5 22 1 5 16365
 May 19,126 15.4 574.3 6257 I 52 9 271K 34 30 15 19 213 2

-----I-----
 Month Files GBy Total WWW I AS A2 DE EX I1 O6 ATW I AE DE EX HI IA O6 SM SO
 -----I-----I-----

Jun 16,552 9.5 583.8 6451 I 2 0 1 0 0 0 48 I 25 182 622 25 32 7 1 26

Month Files GBy Total WWW I ITM TOPIST ATMOWeb

Jun 16,552 9.5 583.8 6451 I 1954 0
 July 17,192 14.9 598.7 I 1908 65255
 Aug 21,077 12.3 611.0 2594 58241
 Sep 15,419 8.3 619.3 1805 928
 Oct 21,969 10.1 629.4

ITM label above includes: AE-C,D,E,Aeros, Alouette, ISIS, DE-1,2, Explorer 22,
 31, 32, Hinotori, SNOE, OGO-6, SanMarco

 WWW file and plot accesses during September 2002 (and the yearly totals)
 for interplanetary COHO-related data from COHOWeb, CDAWeb, and NSSDCFTP:
 Deep Space (Ulysses, Voyager, Pioneer, etc.): 2,734 {2002 Total: 42,498}
 Geospace (IMP-8, Prognost, ACE, WIND, SOHO): 25,070 {2002 Total: 240,689}

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Curator: *Natalie Jaquith*

Responsible Official: *Dr. Joseph H. King, Code 633*

Last Revised: *Thursday, 14-Nov-2002 16:48:24 EST [NAJ]*

Task Assignment 99-301-00 October 2002

COMPUTER SYSTEMS MANAGEMENT TASK GSFC ATR - C. Barrett Raytheon ITSS Task Leader - J. Jacobi Raytheon ITSS Group Manager -

TASK OBJECTIVE: The objectives of this task are to provide systems analysis and technical support to the operational computer activities of the NSSDC; to maintain existing hardware and system-level software to ensure the optimal performance and utilization of its resources and connectivity to its computing sites; to integrate new hardware and system-level software into existing systems to achieve upgraded capabilities and state-of-the-art facilities; to administer specialized software such as data base and optical disk management systems; and to provide users with the necessary documentation, training, and assistance so that NCF resources are fully utilized.

SIGNIFICANT EVENTS:

During October 2002, systems group personnel:

- Upgraded the Code 630 mail server hardware, operating system, and client programs.
- Configured a new FTP server called tie-solar-images.gsfc.nasa.gov with special access for several observatories in order for upload of daily images. These images can then be accessed via anonymous ftp.
- Reconfigured the anonymous ftp archive on rumba so that it would be housed entirely in its own, private directory structure.
- Fixed log file rotation problem on Satellite Situation Center web site.
- Obtained, installed and certified Secure Server Digital ID renewal certificate for NSSDC e-commerce web site.
- Installed version 5.5 of the IDL license server for use by all networks clients.
- Tested the LTO backup system multiple times. It seems to be running now, although performance problems in the restoration of files have been noted and are under investigation.
- Fixed sftp problem for David Han, printing problem to the Oce printer, and restored files from bolero and nvo to various machines.
- Researched all machines in our group which provide mail services. Prepared a report with this information to satisfy a request from the agency CIO.
- Researched and implemented GPG for authenticating e-mail, and researched encryted SMTP servers for possible future use.
- Began reinstalling apache on java with a configuration which matches the setup in use on decaf. Several problems encountered in this process are currently being investigated.
- Tried to configure DLT as a jukebox. The backup software, BackEx, fails to recognize our DLT as a jukebox even though it should be able to.
- Researched alternatives to tripwire and investigated possible replacements for our current task request system.
- Continued to perform routine system administrative duties, including backups, application of stupid and confusing software upgrades and patches, providing assistance to users, and maintaining the IP spreadsheets and equipment database.

Task Assignment 99-302-00 October 2002

SYSTEMS NETWORKING AND SMALL SYSTEMS

GSFC ATR - G. Goucher

Raytheon ITSS Task Leader - R. Dunlap

Raytheon ITSS Group Manager

TASK OBJECTIVE: The objective of this task is to provide network engineering support to Code 600.

SIGNIFICANT EVENTS:

- Staff provided wireless networking support for a meeting hosted by Jonathan Ormes in room 205.
- Staff is in the process of resolving security issues stemming from the latest GITSVST scan.
- Staff continues work to develop the Code 630 Web-based equipment data base.

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Curator: Natalie Jaquith

Responsible Official: Dr. Joseph H. King, Code 633

Last Revised: Friday, 15-Nov-2002 14:32:25 EST [NAJ]

Task Assignment 99-303-00 October 2002

NSSDC COMMON DATA FORMAT (CDF)
GSFC ATR - D. Han
Raytheon ITSS Task Leader - M. Liu
Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of this task are to carry out computer science research, develop computer software and provide user support for the NSSDC Common Data Format (CDF).

SIGNIFICANT EVENTS:

1. Staff finished a Java-based tool program that can be used to merge two CDF files. The main purpose of the program is to allow a master CDF file that contains ISTP-compliant meta-data to be used to fix any CDF files that have invalidate meta-data.
2. A problem with our Java-based Tool programs running Java 1.4 on Windows 2000 is being reviewed. This problem is caused by a misinterpreting CDF file with the Windows' specific Channel Definition File. However, other platforms and Java Virtual machines do not have this problem.
3. Seven user requests/questions were received and responded this month.

CONCERNS AND PROBLEM AREAS:

1. The GZIP compression/decompression option is turned off for 16-bit DOS/Windows 3.x due to its memory constraint.
2. A unusual problem occurs with the older Microsoft C 7.00 compiler in one of the EPOCH parsing routines on DOS/Windows 3.x. It occurs while using the floating point functions and type casting. It is suspected that the Microsoft executables may be getting too large and will require memory overlaying.

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Last Revised: Thursday, 14-Nov-2002 15:19:56 EST [NAJ]

Task Assignment 99-304-00 October 2002

PLES

GSFC ATR - N. James

Raytheon ITSS Task Leader - Dr. D. Williams

Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of this task are to maintain data bases and metadata (NMC, WWW) for planetary, Earth sciences, and selected astrophysics data (HEASARC, EUVE, HST), provide request support and coordinate updates of user interfaces, coordinate WWW activities, support internal and external data base users, assure data set quality, coordinate planetary data acquisition and Earth science data transition, support educational activities, and coordinate publications.

SIGNIFICANT EVENTS:

- The NSSDC WWW server had a total of 13,823,125 error-free accesses logged for October 2002, an increase of 19% compared to September 2002.
 - Task staff responded to over 290 e-mail queries and telephone calls from external users and the Request Office.
 - Task member opened new NEAR data sets for XRS/GRS level 1B and level 2, NLR level 2/3, and magnetometer level 2 data.
 - Task personnel updated information in the Muses-C, Nozomi, Lunar-A, and Stardust spacecraft records.
 - Task staff updated links from the planet pages to the new USGS Gazetteer of Planetary Nomenclature and added information on newly discovered moon to the Uranus satellite fact sheet.
 - Task personnel made numerous updates to the Moon Tree pages as a result of information received due to the renewed interest in the Moon Trees.
 - Task member fixed the links to the high-resolution images on five Photo Gallery pages which had been overlooked in the server migration.
 - Task staff reviewed Viking data sets which had multiple ID's for J. King (633) and made recommendations and updates.
 - Task personel added information on asteroid Annefrank to the Stardust and asteroid pages in preparation for the upcoming flyby.
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Curator: *Natalie Jaquith*

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Last Revised: *Friday, 15-Nov-2002 15:07:29 EST [NAJ]*

Task Assignment 99-305-00

October 2002

NASA SCIENCE OFFICE OF STANDARDS AND TECHNOLOGY (NOST)

GSFC ATR - D. Sawyer

Raytheon ITSS Task Leader - J. Garrett

Raytheon ITSS Group Manager -

TASK OBJECTIVE: The objective of this task is to maintain and expand the NOST so that it can effectively respond to the standards needs of the NSSDC community.

SIGNIFICANT EVENTS:

NOST Archiving Tools Suite - Staff has

- Coded the first version of the Multifile Package Group Analyzer (MPGA) tape packaging software. The setup and installation part of the product are completed. Began coding of the run time mode.
- Participated in meetings regarding the upcoming tape migrations. Discussion centered on determining needed attributes and sources of the attributes.

ISO Data Archiving - Staff has

- The Draft Producer-Archive Interface document has been installed on the ISO Archiving web sites.
- Several presentations on the OAIS Reference Model and the Producer-Archive Interface draft standard have been placed on the ISO Archiving web site.

CCSDS On-Line Information System - Staff has

- Working with current contract holder to maintain the current CCSDS.ORG web site and transition to the new web site designed by the new contractor.
- Continued updates to the 2002 fall set of CCSDS meetings web site. Up to the meeting date, this included the at least daily updates to registrants lists and several updates to agendas and logistics information including changes of meetings and meeting dates.
- Met with site coordinator and hotel staff to coordinate last minute meeting logistics changes.
- Made several updates to the CCSDS Members lists.
- Participated in the NASA Webmasters videocon with the new NASA CIO.
- Continued monitoring of Docushare. Still no activity except for the web creation team.
- Monitored the log files for the CCSDS.ORG WWW-server for any indications of problems or security incidents and continued generating the required data to develop monthly statistics.

CCSDS Standards - Staff has

- Participated the international CCSDS Panel 2 meeting.

- Participated in the joint CCSDS and Object Management Group (OMG) meeting.
- Participated in the GSFC Data Systems Standards group meeting.

Goddard Technical Standards Coordination - Staff has

- Participated in a GSFC Technical Standards Coordination meeting.
- Updated the web site to detail a number of completed and upcoming GSFC reviews of standards.

STATISTICS: CAOIS: As of 31 October 2002, there were 439 Data Description registration numbers assigned. Of these about 30 of the Data Description registration numbers are reserved for NSSDC use during the Cygnet migration, 45 are reserved for IMAGE ingest, and 26 for ISIS ingest. Data Description Packages for these must be generated.

UPCOMING MILESTONES/EVENTS:

NOST Archiving Tool Suite: Staff will

- Complete coding the first version of the Multifile Package Group Analyzer (MPGA) tape packaging software.
- Begin coding the multi-file version of the AIP Extractor.

ISO Archiving Standards: Staff will

- Update the web site to provide information on new archiving thrusts.
- Update web site with information from the fall international meeting.

CCSDS XML Group: Staff will

- Continue low level of support for possible CCSDS XML prototype effort.
- Participate in the upcoming joint CCSDS and OMG meeting.

CCSDS Standards: Staff will

- Review the new draft of the Orbit Data Messages standard and propose updates using PVL and XML for the syntax.

Goddard Technical Standards Participation: Staff will

- Participate as needed in the GSFC Standards Working Group, the NASA Data System Standards Council and the GSFC Standards Review Boards.
- Continue updates for the web site for GSFC Standards Coordination. Update web site to reflect updated standards management.

OLIS: Staff will

- Once new licenses are obtained, setup and support an area within the CCSDS Docushare implementation to support the CCSDS Reorganization Team.

- Participate in upcoming CCSDS.ORG web site redesign meetings as requested. Develop additional proposals for improving the CCSDS Web site as required.
- Add additional documents to the CCSDS Web site as they become available from the CCSDS editor.

CAOIS: Staff will

- Register new data description packages as they are submitted. Note that Cygnet migration, IMAGE ingest and ISIS ingest descriptions still need to be submitted.

Formats Evolution Process - Staff will

- Updating the FEP Web site if any new material is submitted.

ISSUES:**OLIS: Staff will**

- Web support for the month of November will be provided under a no cost extension to the current subcontract.
- There has been very little testing of Docushare by those outside the web team. In simple testing, we've maxed out the directory objects available in the test version. We need to obtain a licensed version to continue work. Also likely that we should provide training at the October meeting to all CCSDS members if we want to use this.

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Curator: Natalie Jaquith

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Last Revised: Monday, 18-Nov-2002 15:05:12 EST [NAJ]

Task Assignment 99-201-00 October 2002

IMAGE

GSFC ATR - R. Burley

Raytheon ITSS Task Leader - C. Klipsch

Raytheon ITSS Group Manager -

TASK OBJECTIVE: The objectives of the IMAGE Mission Data System task are to develop, test, and maintain the IMAGE Web data access and display system, the IMAGE data processing system, and the IMAGE data distribution system.

SIGNIFICANT EVENTS: Staff will continue to maintain IMAGE Data Delivery website according to customer requests.

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Curator: Natalie Jaquith

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Last Revised: Monday, 18-Nov-2002 15:09:57 EST [NAJ]

Task Assignment 99-305-00

October 2002

NASA SCIENCE OFFICE OF STANDARDS AND TECHNOLOGY (NOST)
GSFC ATR - D. Sawyer
Raytheon ITSS Task Leader - J. Garrett
Raytheon ITSS Group Manager -

TASK OBJECTIVE: The objective of this task is to maintain and expand the NOST so that it can effectively respond to the standards needs of the NSSDC community.

SIGNIFICANT EVENTS:

NOST Archiving Tools Suite - Staff has

- Coded the first version of the Multifile Package Group Analyzer (MPGA) tape packaging software. The setup and installation part of the product are completed. Began coding of the run time mode.
- Participated in meetings regarding the upcoming tape migrations. Discussion centered on determining needed attributes and sources of the attributes.

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- The Draft Producer-Archive Interface document has been installed on the ISO Archiving web sites.
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- Met with site coordinator and hotel staff to coordinate last minute meeting logistics changes.
- Made several updates to the CCSDS Members lists.
- Participated in the NASA Webmasters videocon with the new NASA CIO.
- Continued monitoring of Docushare. Still no activity except for the web creation team.
- Monitored the log files for the CCSDS.ORG WWW-server for any indications of problems or security incidents and continued generating the required data to develop monthly statistics.

CCSDS Standards - Staff has

- Participated the international CCSDS Panel 2 meeting.

- Participated in the joint CCSDS and Object Management Group (OMG) meeting.
- Participated in the GSFC Data Systems Standards group meeting.

Goddard Technical Standards Coordination - Staff has

- Participated in a GSFC Technical Standards Coordination meeting.
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STATISTICS: CAOIS: As of 31 October 2002, there were 439 Data Description registration numbers assigned. Of these about 30 of the Data Description registration numbers are reserved for NSSDC use during the Cygnet migration, 45 are reserved for IMAGE ingest, and 26 for ISIS ingest. Data Description Packages for these must be generated.

UPCOMING MILESTONES/EVENTS:

NOST Archiving Tool Suite: Staff will

- Complete coding the first version of the Multifile Package Group Analyzer (MPGA) tape packaging software.
- Begin coding the multi-file version of the AIP Extractor.

ISO Archiving Standards: Staff will

- Update the web site to provide information on new archiving thrusts.
- Update web site with information from the fall international meeting.

CCSDS XML Group: Staff will

- Continue low level of support for possible CCSDS XML prototype effort.
- Participate in the upcoming joint CCSDS and OMG meeting.

CCSDS Standards: Staff will

- Review the new draft of the Orbit Data Messages standard and propose updates using PVL and XML for the syntax.

Goddard Technical Standards Participation: Staff will

- Participate as needed in the GSFC Standards Working Group, the NASA Data System Standards Council and the GSFC Standards Review Boards.
- Continue updates for the web site for GSFC Standards Coordination. Update web site to reflect updated standards management.

OLIS: Staff will

- Once new licenses are obtained, setup and support an area within the CCSDS Docushare implementation to support the CCSDS Reorganization Team.

- Participate in upcoming CCSDS.ORG web site redesign meetings as requested. Develop additional proposals for improving the CCSDS Web site as required.
- Add additional documents to the CCSDS Web site as they become available from the CCSDS editor.

CAOIS: Staff will

- Register new data description packages as they are submitted. Note that Cygnet migration, IMAGE ingest and ISIS ingest descriptions still need to be submitted.

Formats Evolution Process - Staff will

- Updating the FEP Web site if any new material is submitted.

ISSUES:**OLIS: Staff will**

- Web support for the month of November will be provided under a no cost extension to the current subcontract.
- There has been very little testing of Docushare by those outside the web team. In simple testing, we've maxed out the directory objects available in the test version. We need to obtain a licensed version to continue work. Also likely that we should provide training at the October meeting to all CCSDS members if we want to use this.

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Curator: Natalie Jaquith

Responsible Official: *Dr. Joseph H. King, Code 633*

Last Revised: *Monday, 18-Nov-2002 15:05:12 EST [NAJ]*

Task Assignment 99-306-00 October 2002

INFORMATION (METADATA) SYSTEMS DEVELOPMENT AND UPGRADES GSFC ATR - Dr. J. Thieman Raytheon ITSS Task Leader - Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of this task are to define and develop information systems and the interfaces thereto, maintain these systems and interfaces and support the generation of reports therefrom, and recommend and participate in the planning of upgrades to necessary support systems and software as appropriate.

SIGNIFICANT EVENTS:

- Staff released JIN 0.3b.
- Staff fixed a potential security problem in the task request system which could have allowed non-privileged people to update information. Task Request 1145.
- Staff fixed a bug in JEDS that was inserting an extra space into the title field for publications and corrected the erroneous records in the database. Task request 1160.
- Staff replaced the order forms on the poster request system with cautionary notes that no more poster requests are being taken (requested by R. Post, Raytheon ITSS).
- Staff fixed all references to NDADS and to the NSSDC ftp site in the CD-ROM catalog at the request of J. King (Code 633).
- Staff repointed the Space_Events servlet to the operational database following the migration of the information to that database.
- Staff worked with system personnel to update the link to Verisign on the CD-ROM catalog. This required several iterations.
- Staff completed work on the association of dataset(s) with an inventory item.
- Staff worked on Sign In/Out feature of JIN, including: (1) work on the sign-out sequence diagram; (2) discussion with PBC personnel about the requirements and need to change some of them; and, (3) creation of an activity diagram for the sign-in and sign-out processes.
- Database work for JIN included: (1) writing several JDBC methods for setting, deleting, and updating remarks and associations between datasets and media items; (2) writing stored procedures for the same; (3) adding columns to the Media and Med_Dataset tables; and, (4) adding a trigger to the med_sign_in_out table to to update the current status in the Media table.
- Uncovered a defect in the Rational Rose software which, after interaction with a Rational representative to resolve the problems, resulted in some patches being applied to the software.

UPCOMING MILESTONES/EVENTS: Work will continue on JIN.

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Task Assignment 99-307-00 October 2002

SUN-EARTH CONNECTION EDUCATION FORUM (SECEF)

GSFC ATR - Dr. J. Thieman

Raytheon ITSS Task Leader - Dr. S. Odenwald

Raytheon ITSS Group Manager - L. Mayo

TASK OBJECTIVE: The objective of this task is to provide administrative support of the SECEF managers and assistance in preparing for educational outreach events, seek opportunities to leverage SECEF activities for broad national impact, and assist in publicity for the SECEF by developing content for a Web site and publications.

SIGNIFICANT EVENTS:

- Staff is planning for 2004 Venus Transit and drafting events and programs planning document.
- Staff arranged for missions and projects to forward 10,000 copies of various kinds to NASA CORE for packaging by November 1, 2002.
- Staff is writing and editing formal, informal and Big Events contributions to Phase II Definition document.
- Staff is preparing for SECEF Alaskan Teachers Workshop in Anchorage in November 2002.

UPCOMING MILESTONES/EVENTS:

- Staff will continue with the planning for the 2003 Sun-Earth Day.
- Staff will continue with planning for Venus Transit 2004.
- Staff will continue with scheduled EPC meetings.

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Responsible Official: Dr. Joseph H. King, Code 633

Last Revised: Friday, 15-Nov-2002 14:34:08 EST [NAJ]

Task Assignment 99-312-00 October 2002

ANALYSIS SUPPORT FOR THE IMAGE MISSION

GSFC ATR - Dr. J. Green

Raytheon ITSS Task Leader - L. Garcia

Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: The objectives of the Analysis support for the IMAGE Mission task are to maintain and update local copies of the IMAGE software suite, create RPI data analysis software, and to create software to be used in correlative studies between IMAGE detectors and between IMAGE and other missions. This task will also support the synthesis of data and theory in the study of Earth's magnetosphere through creation of unique data products and services. This task will make available appropriate documentation for all of these objectives and will support the IMAGE Science Center Web site.

SIGNIFICANT EVENTS:

- Updated the IMAGE Science Center publications web page and removed the "New!" tags to clear it out for the next quarter.
- Changed the title of the IMAGE Monthly Reports page to IMAGE special reports (to more accurately reflect that they are seldom monthly).
- Added links on the IMAGE Science Center home page to point to sources of IMAGE data.
- Added RPI spectrograms for May 2002 through September 2002 to the web site.
- Maintenance of meeting information included: (1) moving the HENA meeting to the past meetings section; (2) posting tentative and final agendas for the IMAGE team meeting; and, (3) moving the IMAGE team meeting to the past meetings section.
- Modified IDL code used to create plots of the variation of AKR frequency range with magnetic dipole tilt angle. Changes include ability to select frequency profiles for selected dipole tilt angles, ability to smooth the data, removal of noisy channels, and ability to plot the coverage of the data set in the frequency/dipole tilt phase space.
- Updated the IMAGE Science Center publications web page and removed the "New!" tags to clear it out for the next quarter
- Changed the title of the IMAGE monthly reports page to IMAGE special reports (to more accurately reflect that they are seldom monthly).
- Added links on the IMAGE Science Center home page to point to sources of IMAGE data.
- Added RPI spectrograms for May 2002 through September 2002 to the web site.
- Maintenance of meeting information included: (1) moving the HENA meeting to the past meetings section; (2) posting tentative and final agendas for the IMAGE team meeting; and, (3) moving the IMAGE team meeting to the past meetings section.
- Modified IDL code used to create plots of the variation of AKR frequency range with magnetic dipole tilt angle. Changes include ability to select frequency profiles for selected dipole tilt angles, ability to smooth the data, removal of noisy channels, and ability to plot the coverage of the data set in the frequency/dipole tilt phase space.

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Task Assignment 99-313-00 October 2002

COMMUNITY COORDINATED MODELING CENTER

GSFC ATR - Dr. M. Hesse

Raytheon ITSS Task Leader - M. Kuznetsova

Raytheon ITSS Group Manager - T. Kovalick

TASK OBJECTIVE: This task will provide science and software support for Community Coordinated Modeling Center (CCMC). Specific support includes developing and testing of simulation codes for space weather models, performing simulations of realistic space weather events, providing visualization and analysis software, performing comparison of modeling results to satellite measurements, performing research in space plasma physics.

SIGNIFICANT EVENTS:

- Staff replaced calls to NAG library routines in CTIP model by platform independent FORTRAN subroutines.
- Staff prepared Web interface for online submission CTIP model with automatic download of ACE solar wind data, hemospheric power indexes and precipitating particle power in GWt.
- Staff tested CTIP code for different conditions and performed test runs of April 2002 Space Weather Event.

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Responsible Official: Dr. Joseph H. King, Code 633

Last Revised: Tuesday, 19-Nov-2002 09:47:06 EST [NAJ]

Task Assignment 99-316-00 October 2002

Solar Nebula SiO
GSFC ATR - J. Nuth
Raytheon ITSS Task Leader - A. Ali
Raytheon ITSS Group Manager

TASK OBJECTIVE: The objective of this study is to carry out research and analysis of SiO cluster mass distributions from data obtained using the molecular beam apparatus located at Penn State University. This experimental setup produced a unique data set on the cluster distribution of SiO clusters produced by partial condensation following laser evaporation. Future experiments will concentrate on extending these basic experiments to isotopically labeled systems using pure Si[28] and enriched oxygen isotopes. These experiments are highly relevant to the origin of oxygen isotopic anomalies in the early solar nebula and present a very complex analytical problem.

SIGNIFICANT EVENTS:

Staff continued analysis of the data of cluster mass distributions. Experimental detection of SiO₂ is a requirement in order to justify that cluster distributions are basic recombination of SiO and SiO₂ in the pathways of condensation reaction in the experiment.

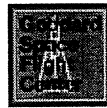
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Responsible Official: *Dr. Joseph H. King, Code 633*

Last Revised: *Tuesday, 19-Nov-2002 16:01:39 EST [NAJ]*